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division into six pot and six IHS watermarks. This division is repeated in sheet C: six pot and three each of IHS and bird watermarks. More startling is the distribution of press corrections in C: the six uncorrected exemplars of the inner forme are printed on the six sheets of pot-G/RO paper, and the six corrected exemplars of that forme are printed on the other two papers. Further, the three uncorrected exemplars of the outer forme likewise appear on the pot paper, backed of course by the uncorrected state of the inner forme. Clearly, so neat a distribution may be fortuitous, for we are analyzing a sample of precisely twelve copies;[21] yet sheets D, E, F serve to clarify and stress the pattern. This pattern involves multiples of two. Sheet D, indeed, with two spray, seven IHS, and three bird watermarks, varies from even quantities. But E is divided neatly into eight and four, and F into ten and two. (As the IHS mark tends to outnumber the bird, it looks now as if the original proportion of these papers in sheet C may have been four to two.) With sheet G comes a shift to a new watermark and a steady outpouring of grapes, except for two crown marks in H. There are just four instances of uncorrected readings in outer F, and they fall only on IHS paper. The variant formes of G and K are printed on (apparently) invariant paper.[22] If in the latter part of the quarto the rhythm of two's is somewhat obscured, it is not obviously disturbed.

The distribution we have observed bears substantial implications for the size of the edition and for the order of the formes through the press. The first is the easier to see. The edition was probably one of 1500 copies. This quantity best satisfies both the distribution ratios and the external evidence.[23] If we adopt the working assumption that each watermark in the

21. Readily factorable into pitfalls and snares.

22. The uncorrected copies are not among the twelve: they are respectively at Huntington and Texas.

23. A case might be made out for 2000 copies in terms of certain ratios and the number of surviving copies. But 1500 fits all the conditions and exactly suits the hypothesis on presswork discussed later. Similar considerations and the balanced distributions make an edition of 1250 or 1750 improbable.

table represents a half-token of paper (five quires), we can follow the course of the press (or presses) from paper to paper fairly well. We reckon in tokens as the seventeenth-century pressman commonly did. The hypothesis works this way. Whatever was the first forme on the press and the number of presses involved, sheet B used three tokens or 750 sheets each of IHS paper and pot paper. The pot paper was continued and printed the uncorrected state of inner C, using three more tokens and thus completing three reams of pot paper. The rest of the edition sheet must have been made up of a ream of IHS paper and a token of bird paper, or vice versa (the table showing 3's for each). Sheet D used a stray token of spray paper along with perhaps two reams of IHS and a token of bird paper (the ratio being 2:7:3). Sheet E is easy: exactly two reams of IHS and one of bird (8:4); and so is F, with five tokens of IHS and one of bird (10:2). At this point the warehouse boy opened up a bale of grape paper, and the press (or presses) proceeded monotonously through thirteen reams of it (sheet G to half-sheet A), unrelieved except for a token of crown paper which turned up during the printing of sheet H.

An edition of 1500 fits with other evidence and considerations. (1) *The Opportunitie* was made up in three lots, with variant imprints: the main lot for Crooke and Cooke, a smaller one for Crooke alone, and a few copies for sale in Dublin. (2) I have located thirty-six copies in libraries and a dozen others in sale or auction catalogs. Thus the edition was clearly one of some size. (3) Shirley was a popular dramatist in his time and also liked on the Restoration stage; yet Andrew Crooke found it unnecessary to reprint any of Shirley's plays in which he had rights.[24] (4) The Stationers' Company had long permitted editions of 1250 and 1500, and the number had been increased to 1500 and 2000 in 1635.[25] In July 1639 the Company specifically gave John Benson "leaue to print an

24. He did reprint Fletcher's *Wit without Money* and *The Night-Walker* in 1661.

25. Arber, IV, 22.

Impression of 1500" copies of a second edition of Davenant's play *The Tragedy of Albovine*[26]—though apparently he did not do so. (5) As Mr. Hinman has pointed out, two sets of headlines (such as *The Opportunitie* has) would hardly save time in presswork, due to the time needed for typesetting, unless the edition was one of at least 1200 copies.[27] (6) An edition of 1500 is implied by certain evidence concerning the rate of presswork presently to be offered.[28]

Before taking up the problem of the order of the formes through the press, we should know the number of presses available. The Cotes establishment was an important one and must have operated at least two presses. The Jaggards had had two in their day. Mr. Willoughby has shown that their output for 1619-1623 averaged more than four hundred edition sheets a year, far more than one press would be able to handle.[29] Thomas and Richard Cotes, their successors, carried on a business of similar size.[30] And in 1637 a Star Chamber decree allowed the master printers, Thomas Cotes among them, two presses, or, rather, no more than two presses.[31] As this act seems not to have been closely enforced,[32] we need to allow for the possibility that Cotes had a third press, possibly some worn relic of Jaggard days, useful mainly for proofing[33] and for printing

26. Greg, 1, 51.

27. Charlton Hinman, "New Uses for Headlines as Bibliographical Evidence," *English Institute Annual 1941* (New York, 1942), pp. 208-14.

28. An edition of 1500 means that perhaps 1525 copies of each sheet would be printed. A quire would be allowed for proofs, waste, and possibly a few printer's copies. See Francis R. Johnson, "Printers' 'Copy Books' and the Black Market in the Elizabethan Book Trade," *The Library*, 5th s., 1 (1946-47), 99-100. The extra quire might introduce a foreign watermark into an edition sheet—such as the pot-fleur-de-lis mark in sheet B of *The Opportunitie*.

29. Edwin E. Willoughby, *The Printing of the First Folio of Shakespeare* (Oxford, 1932), pp. 27-28, and *A Printer of Shakespeare: The Books and Times of William Jaggard* (London, 1934), chs. xii-xiv.

30. Between 1627 and 1640 *STC* lists 264 books with Cotes imprints, an average of twenty books a year.

31. Henry R. Plomer, *A Short History of English Printing* (London, 1900), p. 179.

32. *Ibid.*, p. 181. For instance, certain disallowed printers, such as John Norton the younger, continued to print.

33. Several bits of evidence point to facilities for easy proofing in Cotes's shop: (1) the relative infrequency of variant formes in Cotes quartos (just 5 out of 19 in *The Opportunitie*, not counting variant imprints); (2) the indications that some of these few variant formes are

broadsides. Two presses, however, would provide ample means for printing six to ten edition sheets a week (depending on the size of the edition),[34] along with opportunities for proofing and for minor pieces of presswork.

Thus the resources of the Cotes shop in the Barbican allowed a choice between one press and two presses for the printing of a quarto. The nature of the work, as well as the habits of the shop, would ordinarily decide the question. In general, two presses (printing simultaneously or in relay) might be employed when a single job was in hand or when a certain book was given priority over others; and one press for each might be used when two books were in process and full use needed to be made of workmen, type, and presses. By allocating each quarto to separate compositors and pressmen and a single press, a master printer might reasonably expect that work on two plays would go forward simultaneously without confusion of formes or printed sheets. Circumstances would modify practice, of course, but a system of alternating the work on two presses between two books would have been no system at all. These considerations imply that *The Opportunitie*, as one of a series of play-quartos, would normally be printed on a single press.

For clues as to Cotes's method of handling such quartos, let us turn to the watermarks in *The Night-Walker* and *The Coronation*, their marks being much like those in *The Opportunitie*. The accompanying table shows the distribution in a few copies of these plays. *The Night-Walker* has six watermarks in common with *The Opportunitie*: pot-G/RO, pot-fleur-de-lis, IHS, bird, spray, grapes, plus two others, a lion on a shield and a belt encircling a quartered shield. The distribution looks a little

due to second corrections or "revises" (as in outer C and outer F of *The Opportunitie;* and (3) the further indications that first corrections were made either before printing began or before more than a few quires had been printed (as in inner G and inner K of this play). See discussion below. As for special "proof presses," they are first mentioned in Restoration times. A table of the "Number of Presses and Workmen Employed in the Printing Houses of London in 1668" lists two proof presses, and assigns Mrs. Ellen Cotes, widow of Richard Cotes, "3 Presses, 2 Apprentices, 9 Pressmen" (Plomer, pp. 225-26).

34. And assuming about 1000 perfected sheets a day.

wild: each copy has five to seven different marks within nine and a half sheets. Yet sheet B has one consistent mark—grapes (its only appearance in the quarto).[35] And sheets G and H show a division between two marks, pot and IHS; other sheets a

Watermarks in THE NIGHT-WALKER

	ICU	DFo[1]	DFo[2]	ICN	PU
A	Pot-fl	.....	IHS	Pot-fl	.....
B	Grapes	Grapes	Grapes	Grapes	Grapes
C	Belt	Bird	Bird	Spray	Bird
D	Lion	Bird	Belt	Lion	Bird
E	Pot-fl	IHS	IHS	IHS	?
F	Belt	Pot-fl	Pot-fl	IHS	Pot-fl
G	IHS	Pot-fl	Pot-fl	IHS	Pot-fl
H	Pot-fl	IHS	IHS	Pot-fl	IHS
I	IHS	Belt	IHS	Bird	IHS
K	Belt	IHS	Pot-?/RO	Belt	Spray

Collation: A^2 B-K^4. Copies: Chicago, Folger (DFo[2] Inderwick), Newberry, Pennsylvania. *Abbreviation: fl* fleur-de-lis.

Watermarks in THE CORONATION

	ICU	DFo	DLC	ICN	S
A	Grapes	.....	Grapes	Grapes	Grapes
B	Bird	Grapes	Grapes	Belt	Belt
C	IHS	Bird	Belt	IHS	IHS
D	IHS	Bird	Grapes	IHS	IHS
E	Grapes	Bird	IHS	Grapes	Bird
F	Belt	Grapes?	Grapes	Crown/GP	Grapes?
G	Grapes?	Grapes	Grapes	Grapes	Grapes
H	Grapes	Grapes	Grapes	Grapes	Grapes
I	Grapes	Grapes	Grapes	Grapes?	Crown/GP
K	Grapes	Grapes?	Grapes?	.....	.....

Collation: A^2 B-I^4 K^2. Copies: Chicago, Folger, Library of Congress, Newberry, Stevenson.

35. Raising the suspicion of a reprint or cancel sheet.

division among three, as lion twice with bird and belt in sheet D, and IHS thrice with the same pair in sheet I. Without further evidence we cannot say whether such distributions are characteristic of the use of two presses. The case of *The Coronation* is clearer. With just two to five watermarks to a copy, it has four in common with *The Opportunitie*: IHS, bird, grapes, and crown/GP, plus the belt mark found in *The Night-Walker*. Their relatively simple pattern is surprisingly like that of *The Opportunitie*. There is the same general progression from IHS-bird to grape papers, except that *The Coronation* reached the run of grape paper at F, one sheet behind *The Opportunitie*.[36] In sheets B and C of *The Coronation* the belt paper occupies more or less the place of the pot-G/RO paper. The IHS paper continues commoner than the associated bird paper. And again the crown paper occurs sporadically among the reams of grapes.

The inference is inescapable: *The Coronation* was going through the press at very nearly the same time as *The Opportunitie*.[37] Placed side by side, the tables tell a similar story of moving from IHS and associated papers into a long run of grape paper. The simplest explanation is that the two plays were being printed on separate presses fed by the same job-lot supply of paper. There is again the contrary suggestion of more than one press in the use of three papers in sheets B to F of *The Coronation*, but just such a mixture of papers may have come from the stockroom. The very differences in the two sets of watermarks support the hypothesis of separate presses. During the printing of sheets B and C of these plays press 1 was supplied with several reams of pot paper, and press 2 with a similar amount of belt paper. At sheet F, press 2 (printing *The Coronation*) came upon a little more belt paper, possibly a remainder from its earlier use. The spray paper occurs only in *The Opportunitie*. And only in *The Coronation* does the grape paper turn up

36. That is, if they reached this paper on the same day, *The Opportunitie* was a day or two farther advanced in its printing.

37. *The Night-Walker* as clearly was not, though it may have preceded (or followed) these plays.

from time to time before the main body of the grape paper is reached.[38] Thus, the general similarities and particular differences together argue that the two plays were printed on separate presses during approximately the same period of time.

That this is probably the right view, at least for the latter two-thirds of *The Opportunitie*, is attested by the apparent fact of a single compositor there. When composition must keep up with two presses, we may expect to find alternate setting by two compositors. But when a single press undertakes an edition of 1250 or 1500, one compositor should be able to keep up with its demands.[39] Though there are signs of two compositors in the first third of the play, particularly in sheet C, for the present it is safer to assume a single press there, too.

Now we can attempt to plot the order of the formes through the press, using what we know of compositors, headlines, corrections, the edition size, the presses available—and the papers laid out. As some of the evidence is itself inferential and limited by the number of copies examined, and as the patterns of the watermarks are under consideration as new evidence, we need rather to explore the more likely methods of presswork than grasp at conclusions. However, the new material considerably extends the range of enquiry and perhaps leads us close to right answers.

For the present we assume that 1500 copies of *The Opportunitie* were printed on a single press.

Sheet B has been composed. Skeleton X has been made up and placed about its inner forme, and skeleton Y made up (with an ornament at the head of the first page of text) and placed about its outer forme. Whichever forme went first on the press might be a matter of chance if B4^{v} was composed before the press was made ready or if preliminary proofs were taken before presswork began. Though there is some reason to think the

38. Both presses would be supplied from the same stockpile or warehouse room, but the accidents of time and choice would cause variations in the papers set out for each press.

39. Hinman, pp. 209-12.

normal procedure in Cotes's shop was inner forme on first,[40] the beginning forme would matter less than later ones. Here, on first analysis, it looks as if the press began with the outer forme. In the absence of variants in sheet B the watermarks offer a clue—that is, the watermarks of B in their relation to the watermarks and corrections of C. Assuming (what is reasonable but uncertain) that the pot papers in sheets B and C were a continuous run of just three reams among the prevailing IHS paper, we see that printing might begin with the outer forme on three tokens of IHS paper, and then proceed to a similar quantity of pot paper. In this manner skeleton Y would be first through the press and available for imposing about the inner forme of C as soon as seven type-pages of this signature had been composed. The shift of the skeleton from an outer to an inner forme would be natural enough.

There is, however, a better explanation of this shift. It lies in the pattern of the headlines through the quarto. As we have noted, there is a shift of skeletons not only after B, but likewise after D (with a turn of skeleton X), after E, and after G; and between I and K—though there is no shift—skeleton X is turned to starting position. Thus we find a rhythm of alternate sheets, except for a change of accent or quickening of tempo at sheet E.[41] I have an idea that the correct explanation is that which Mr. Bowers has recently found for a similar phenomenon in the Pide Bull *Lear*: a shift means the end of a day's labor, or

40. For instance, the headlines of *The Humorous Courtier* seem to reflect the rule of inner forme on the press first:

Skeleton X:	B(i)	...	...	E(i)	...	G(i)	H(i)	...	K(i, o)
Skeleton Y:	B(o)	C(o)	D(o)	...	F(i)	G(o)	...	I(i)	...
Skeleton Z:	...	[C(i)]	D(i)	E(o)	F(o)	...	H(o)	I(o)	...

K is a half-sheet. Skeleton Z received changes of spelling after being set. If printing began on a single press with B(i), each inner forme thereafter used either the waiting (or new) skeleton or the first skeleton off. Any mixed method would not work so smoothly, and hitches would occur at E and G if the rule were to send outer formes to press first.

41. In terms of the inner forme the sequence is B(i)-X C(i)-Y D(i)-Y E(i)-X^t F(i)-Y G(i)-Y H(i)-X I(i)-X K(i)-X^t. Exact alternation would have given shifts after C E G I or B D F H.

some like pause in the work.[42] Indeed, the rhythm suggests a rough printing schedule for the play. We may suppose that Cotes's well-ordered establishment, using two skeletons, normally printed and perfected about 1000 sheets (two reams) on one press in one day.[43] Thus, in machining an edition of 1500, completion of a sheet would tend to coincide with the end of the work-day every third day. Ordinarily a sheet begun on a morning would be two-thirds done by the evening and quite finished at noon the next day; and the following sheet would be one-third done by the second evening and completely perfected by the third evening. And, it will be noted, if all went well the presswork on four edition sheets might neatly fill a week.

Then what precisely caused the shifts? Probably the habits of certain compositors in the shop of Thomas Cotes. If the compositor preferred to wait till the end of the day to distribute type,[44] at the end of any third day he would have on his workbench both formes of the sheet finished that day. If he placed the second forme on the bench below the first, pushing the first up and out of the way, the second forme (last off the press) would of course be the nearer one to him when he began distributing. And in this situation he would naturally attend to the nearer forme first. If in stripping this forme he placed its skeleton around the next forme designed for the press, and was consistent in the forme he sent first to press, he would bring about the sort of shift of skeleton that occurred four times during the printing of the play. The twice-turning of skeleton X might come from setting the forme down elsewhere before finding room for it on the bench. And the *omission* of a shift between sheets I and K may have been due to the nature of K,

42. Fredson Bowers, "An Examination of the Method of Proof Correction in *Lear*," *The Library*, 5th s., II (1947-48), 31 n.1, 35.

43. Mr. Hinman has computed that a single press using one skeleton "as a rule printed daily about 900 perfected sheets," and remarks that "of course this number could sometimes be increased by the use of two skeletons." "New Uses for Headlines," pp. 209-10.

44. This would be regular. Joseph Moxon, *Mechanick Exercises*, ed. T. L. De Vinne (New York, 1896), II, 210; quoted with comments by R. C. Bald, "Evidence and Inference in Bibliography," *English Institute Annual 1941*, p. 17.

which, ending in the midst of K4r, might the more readily receive the waiting skeleton X about its inner forme before outer I with skeleton Y came from the press.[45]

We now return to the presswork on the early sheets, better able to imagine how they were handled. We see that the inner forme of sheet B may after all have been first on the press if the completion of work on the sheet coincided with the end of a day. If so, presswork must have commenced sometime during the previous day. Actually the shift may have come about either through beginning printing with the outer forme or beginning distribution with the second forme at the end of the day, though the sequence of shifts favors the latter view. In either case, we assume that the pressman began printing on IHS paper and after about 750 sheets went on to the first tokens of pot paper. If work commenced around noon, about mid-morning of the second day he would turn the pile and, the work moving smoothly, perfect the whole of it before going home to supper. And in the meantime sheet C would have been composed.

Sheet C is unusually interesting because of the close correspondence between its variations in text and paper. The chances are that the printing of this sheet began on a morning with the inner forme (and skeleton Y) on the press. The priority of the inner forme is particularly suggested by the fact that fifty per cent of the exemplars are uncorrected—that half the white paper was printed before the corrector arrived—whereas outer C received corrections after about 15 per cent of its pulls. The pressman, continuing with the pot paper used in B, began in the middle of a ream of it and finished three tokens before pausing for corrections and then going on to a fresh supply of IHS (and bird) paper, on which he impressed the whole of the corrected state. After thus taking 750 pulls of each state, by mid-afternoon he would be ready to turn the pile of printed sheets

45. Or, if imposition took place with both skeletons on the bench, the compositor may have found it easier to send outer K to press first, because of its three type pages, and therefore transferred to it skeleton Y from the nearer forme of I.

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New Uses of Watermarks As Bibliographical Evidence

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and begin perfecting the lot. He would perfect perhaps a token with outer C (and skeleton X) in uncorrected state, pause again for corrections, and perfect another token with the corrected forme before quitting for the day—if he completed the 2000 daily pulls we have assumed. The following morning would be sufficient for perfecting the remaining 1000 sheets. This treatment of sheet C envisages the "normal" procedure of printing the whole run of white paper with one forme before turning the pile and perfecting with the other forme;[46] and the pauses for corrections might be suitably filled with the taking of proofs[47] or necessary work about the press.[48]

However, there is a modification of this method which would make more efficient use of the pressman's time and such evidence as the relative quantities of uncorrected pulls for the two formes. It is odd that half the pulls of inner C should be uncorrected and a third of these backed with uncorrected pulls of the outer forme—when only three later formes exhibit corrections, and these with normal percentages in different sheets. But, as will be seen presently, sheet C must have been printed around Easter; and on the morning of Easter Even or Easter Monday Tom Cotes or the corrector might come to the printing-house late. Now then. The pressman, while printing the three tokens of uncorrected inner C, may have become aware of the need of corrections and decided not to go beyond the mid-point of the run without them. He had a heap of 750 sheets and had exhausted the supply of pot paper. Having proceeded so far, he might turn the heap, substitute the outer forme on the bed of the press, and begin printing with little fear of smudging. By noon he would have perfected about a token (one third) of

46. For the most satisfactory hypothesis concerning the customary order of proofing, printing, and correction, see Bowers, "An Examination of the Method of Proof Correction in *Lear*," pp. 28-30, and his fuller discussion, "Elizabethan Proofing," *Joseph Quincy Adams Memorial Studies* (Washington, 1948), pp. 571-86.

47. Such as preliminary proofs for outer C during the first pause or proofs for the other press (*The Coronation*) during either pause.

48. Bowers, "Proof Correction in *Lear*," p. 42 n. 2, and "Elizabethan Proofing," p. 578.

the printed sheets, thus completing 1000 pulls for the morning. About this time (we may suppose) the corrector appeared and attended to the inner forme, and then in a burst of virtuosity corrected the outer forme as well.

I am led to this inference not merely by the three to one ratio of uncorrected pulls and the neatness of the hypothesis but by the presence of "literary" corrections in these formes, perhaps one in inner C and four in outer C.[49] After study of the variant and invariant formes in several quartos, I am of the opinion that Cotes's formes commonly received cursory correction before printing commenced,[50] and I consider such corrections as those in outer C and outer F, and possibly those in inner C, true stop-press corrections, the second sets of corrections made in those formes. Obviously, second corrections would be made only where first corrections proved insufficient from the point of view of printer's style or reader's sense. There is no way of knowing whether both uncorrected states of sheet C *were* printed ahead of the corrected states, but this method accords precisely with the evidence. In the afternoon the pressman would go ahead with the corrected formes, presumably first printing the second half of the run of inner C, on IHS and bird papers, and then, towards the end of the day, perfecting about one token with corrected outer C. As before, he would finish perfecting the edition sheet the next morning.

49. Such as "redevivd" for "redevind" at C1r 11 and "ſiſter" for "ſiſters ſiſter" at C3r 20. Of literal corrections C(i) has 5 out of 9, while C(o) has just 3 out of 14.

50. The invariant formes in *The Opportunitie* are generally clear of broken type, transposed letters, turned letters, foul case, raised quads, and similar mechanical errors. It is mainly such faults that are marked for correction in the two surviving page proofs of the Shakespeare Folio of 1623, when Thomas Cotes (later clerk of St Giles Cripplegate: Arber, III, 704) was probably Jaggard's foreman and corrector. See Willoughby, *The Printing of the First Folio*, frontispiece and pp. 62-64, and Charlton Hinman, "A Proof-Sheet in the First Folio of Shakespeare," *The Library*, 4th s., XXIII (1942-43), 101-7. Though Mr. Willoughby takes the *Anthony and Cleopatra* proof-marks as those for a second correction, the high percentage of literal changes and the rarity of the uncorrected state (existent only in the proof itself and the Bridgewater-Huntington copy) suggest the probability that these were the first and only corrections made. Of the *Othello* corrections marked in the Jonas-Folger folio and found in 95% of the Folger folios, Mr. Hinman says (p. 103): "there can be no real question but that the forme was unlocked for correction only once."

There is less evidence as to the manner of printing the sheets that followed C, but what there is fits the hypothesis of 1500 copies printed on a single press at the rate of one edition sheet in a day and a half.

If the perfecting of sheet C was completed on a morning, the press could begin printing the white paper of sheet D in the afternoon. No late corrections were made,[51] and the sequence of the three watermarks is doubtful.[52] Assuming normal procedure, with the inner forme on the press first and printing the whole run of paper before the exchange of formes, we may suppose that 1000 sheets were printed in the afternoon, that perfecting began about the middle of the next morning, that the sheet was completed by evening. At this point comes the second shift of skeletons—and the turning of skeleton X.

Sheet E is an anomaly, for a third shift of skeletons occurs between it and the following sheet. There are indications of a change of compositors, perhaps in the midst of E1^{r}.[53] There are no variants, and the watermarks imply an orderly run of two reams of IHS paper and one ream of bird paper. We may imagine some sort of delay, due to holidays, the change in compositors, or the need of the press for other work.[54] The delay may have been half a day or as much as a day and a half. At any rate, it is convenient to suppose that the printing of this sheet began about noon of one day and ended at the close of the next. For at this point comes the third shift in skeletons.

Continuing our hypothetical schedule, we find particular support for it in the corrections of outer F. If the printing of inner F (invariant) took the usual three-fourths of a day, the press would have time to perfect 500 sheets in the late afternoon.

51. Unless there was an adjustment of the fallen "y" in "young" at D2^{v} 22 (outer forme), its time of falling being uncertain. In copies checked, the defect occurs on all three papers used, and the correct form on spray and IHS papers.

52. For the error may have occurred at any time during the printing of the forme.

53. With a variation in speech-prefix forms. In this sheet only the full spellings "would" and "should" are used, "wud" making its first appearance at F1^{v}. And the catchword "*Orf.*," reminiscent of the compositor of *The Humorous Courtier*, occurs at E4^{r}.

54. Such as the printing of playbills (Greg, 1, 35) or the perfecting of a sheet of *The Coronation*.

These correspond to the proportion of uncorrected sheets in the run, one-third. Over night the need of corrections was noted, and they were made. That these were *second* corrections is indicated by the fact that *none* were literal corrections, two amended the sense,[55] and the remaining five strengthened the punctuation. Presumably, then, the corrected outer forme perfected the last 1000 sheets on the following morning. Noting that the uncorrected state is on IHS paper, we may infer that the perfecting, and therefore likewise the printing of the white paper, commenced with a ream of IHS paper. The order of the other two reams is not clear, but the principle of continuity would put the (token of) bird paper at the end of the run.

At this point the change to grape paper took place. There is nothing to suggest a delay, for the new paper was probably laid out and dampened the night before. Our alternating schedule starts the printing of sheet G in an afternoon. If inner G went on the press first, either several proofs were taken or else printing proceeded while the proofs were being read. For this time the fourteen corrections include five literal changes, nine punctuation additions or substitutions, and *no* alterations of verbal sense. It was a quick job, or one done at lunchtime: only a few uncorrected quires can have been printed, for just one uncorrected copy has come to light. As this copy has a grape watermark,[56] apparently the whole edition sheet is so marked. On the second day of grape paper the heap would be ready to turn by mid-morning, and perfecting could be completed by night. The fourth shift of skeletons took place here.

Sheets H and I involve no problems and may be assigned to the third, fourth, and fifth days of grape paper. The two crown/GP watermarks among the twelve exemplars in H may be a good clue to the source of the grape paper, but they seem to tell us nothing about presswork.

The imposition of sheet K was accompanied by no shift of

55. At $F1^r$ 15 "and" became "or" and at $F2^v$ 14 "Lady" was changed to "body."

56. The Huntington Library so reports.

skeleton but instead a turning of skeleton X as inner K received it. When this forme went on the press (first or last), two small corrections were made in the final type-page after only a few pulls had been taken. (Corrections may have been made already in the three earlier pages of the forme.) These amounted to one perverse change in a speech-prefix[57] and one correction of broken type. Such changes might be made without removing the forme from the press. And thus the machining of sheet K would go ahead relatively smoothly on grape paper and reach completion about noon of its second day.

With the nine edition sheets of text out of the way, the press would proceed to the preliminaries, half-sheet A. At about this time Shirley, on arriving from Ireland, visited the printing-house, and penned his dedication to Captain Richard Owen.[58] In it he tells us he found *The Opportunitie* "emergent from the Preſſe, and prepar'd to ſeeke entertainment abroad." If there was no delay, this dedication as well as the title-page should have been in type by the morning on which the last sheets of K were perfected, and the greater part of the required half-sheets might be wrought off the same day. The most likely treatment would be imposition in a single forme[59] and printing by the print-and-turn method.[60] That is, the forme would be made up of the title (A1r), a blank (A1v), the dedication (A2r), and "The Actors Names" (A2v), arranged clockwise in the chase, with the title at lower left (or upper right); and as usual the sheets would be turned endwise for perfecting by the same forme.[61]

57. That is, "*Bo.*" to "*Bor.*" at K4r 15, leaving "*Bo.*" unchanged in line 2 above.

58. Shirley had just crossed the Irish Sea in Owen's ship the *Ninth Whelp;* see my article "Shirley's Years in Ireland," *RES*, xx (1944), 22-28.

59. One might expect to find that the preliminaries of *The Opportunitie* and *The Coronation* were printed together, with both titles in one forme. But they were not: the plays have an identical line of type on their title-pages, "As it was preſented by her." And the title-page of *The Coronation* was not printed when Shirley was about the printing-house, for it assigns this his play to John Fletcher.

60. Dr. Greg shows that half-sheet "a" of Shirley's masque *The Triumph of Peace* (printed by J. Norton, 1633/4) was presumably handled in this manner. W. W. Greg, "*The Triumph of Peace:* A Bibliographer's Nightmare," *The Library*, 5th s., 1 (1946-47), 114.

61. An interesting question arises as to what might have happened if Shirley had not ar-

Now, the matter is complicated by variant imprints and a curious distribution of watermarks. Three lots were made up for the publishers: (1) the main one for Crooke and Cooke, dated 1640; (2) a smaller one for Crooke alone, not dated; and (3) a few copies for Crooke to sell in Dublin, dated 1640. These states exist in percentages of approximately 58, 40, and 2.[62] The watermark table shows state 1 fairly equally divided between watermarked and unwatermarked ends, but state 2 printed only on watermarked ends. Of five copies of this state examined,[63] five are watermarked with grapes, none unwatermarked. (State 3 is the unique Kemble-Devonshire-Huntington copy and is mounted so as to obscure watermarks.) The explanation of this distribution does not seem easy, particularly as we do not know how consistently watermarked ends were arranged in a ream. It probably would be easier for a paper maker to gather sheets consistently, and the run of watermarks in certain folio and quarto sheets seems uniform, but little is known about the point. In the present half-sheet we must assume either a freakish distribution or a fairly consistent arrangement of the sheets on which the undated state was printed.

A possible explanation, offered tentatively, is this. The pressman printed the complete run of the main state,[64] say 875 copies (three and a half tokens), before turning the heap and perfecting with states 2 and 3. If the title fell on unwatermarked ends during the first ream and on watermarked ends during the rest of the run, the ratio of blanks to marks for state 1 would be

rived home in time to include the dedication. Cotes could have printed the title and dramatis personae back to back within a half-sheet, but he seems to have had little liking for quartos beginning with a blank leaf. He might have put in the catalog of Shirley's publications which fills a page in the preliminaries of *The Maides Revenge* and *The Humorous Courtier;* or he might have had a dedication from another hand, something like the one Andrew Crooke furnished for *Loves Crueltie*. The problem did not arise in printing *The Coronation*, for it has a prologue to fill out its preliminary half-sheet.

62. My census at present locates 28 copies of state 1 (20 in libraries), 19 of state 2 (14 in libraries), and 1 of state 3 (at the Huntington Library).

63. The four in the table plus the Huntington copy.

64. Typographical relationships imply the sequence of states here assumed. The undated state looks like a hasty modification of the main imprint, for words are run together. The date "1640" in the Dublin imprint is reset.

about five to four. After the imprint was changed and the heap had been turned, the pressman would be printing the undated title on watermarked ends for the space of a ream and on unwatermarked ends for a few quires beyond, if, say, 625 copies were needed of the two Crooke states.[65] If we allow a quire for state 3 (a few copies to sell in Dublin), the ratio of marks to blanks for state 2 would be about five to one. However, the press would go on perfecting so that the whole of state 1 might include the dedication. The objection to this method is that it wastes upwards of 250 half-sheets, though some allowance may be made for proofs, unsatisfactory pulls, and possibly printer's copy books[66] and title-pages to be used as posters. On the other hand, an initial run of 875 or 900 sheets would just about fill an afternoon, and would conveniently put the whole of the main state on one side of the sheet. No simple, economical explanation seems available.[67] When ingenuity tires, we may fall back on eccentric distribution as an almost-acceptable answer.

Thus far we have assumed that *The Opportunitie* was printed wholly on a single press. We need now to explore briefly the possibility that a few of the early sheets were printed instead on two presses. Reasons for making allowance for this possibility include: (1) the neat division between pot and other watermarks in sheets B and C; (2) the evidence of two compositors in C, suggesting rapid composition; (3) the three to one ratio of uncorrected pulls in the two formes of C, suggesting a lag

65. This assumes proportions of 7 and 5 for the Crooke-Cooke issue as against the two Crooke issues.

66. In view of an ordinance of 1635, Cotes may have allowed his men copy money instead of copy books; see Johnson, "Printers' 'Copy Books' and the Black Market," p. 99.

67. The main alternative would be printing in half-formes alongside other material; but it is difficult to identify possible material. As we have seen, it could not be half-sheet A of *The Coronation*. Nor would it likely be half-sheet K of that play, for it uses the headlines from outer I in a pattern which apparently implies imposition in a single forme; see Mr. Bowers' discussion of headlines and half-sheet imposition in this present volume. No other plays of the group have the grape watermark in their preliminaries, except *The Swaggering Damsell*, and in that play they occupy a full sheet.

between presses; and (4) the incidence of Easter, 5 April 1640,[68] and consequent abnormal working conditions in the printing-house. These reasons are not material, but they are clues worth investigating.

The equal balance between pot and IHS watermarks in sheet B urges the idea of simultaneous printing on two presses. Simultaneous printing would seem a natural method for machining the first sheet of a play, if two presses were available.[69] Press 1 (say) might begin with the inner forme (skeleton X) and print a ream and a half of pot paper, while press 2 would take the outer forme (skeleton Y) and print a similar amount of IHS paper. At this point the pressmen would exchange heaps and begin to perfect each other's work. The first man through would provide the first forme on of the next sheet; and this in itself might cause such a shift in skeletons as that between B and C.

At this stage single-press printing might begin, or both presses might continue. However, sheet C cannot have been printed simultaneously, for the uncorrected states are found back to back. The relay system might be used—that in which one press prints and the other perfects.[70] Following this method, we may suppose that press 1 would continue with pot paper, using up the second ream and a half of it before pausing for corrections. When they arrived, it probably would go on to impress the corrected inner state on IHS and bird paper. In that case press 2 might follow after a ream or so with the uncorrected state of outer C.[71] An advantage of this procedure is that press

68. Julian reckoning. Checked by a perpetual calendar and an almanac for 1640.

69. Both presses might be available if Cotes was not yet ready to start printing *The Coronation*. As noted, *The Opportunitie* was one sheet farther along when it reached the grape paper.

70. For discussions of the relay or "staggered" method see Edwin Wolf 2d, "Press Corrections in Sixteenth- and Seventeenth-Century Quartos," *Papers of the Bibliographical Society of America*, XXXVI (1942), 193-96, and F. R. Johnson, "Press Corrections and Presswork in the Elizabethan Printing Shop," *loc. cit.*, XL (1946), 285-86.

71. The shift from simultaneous to relay printing might be decided on if one press had got ahead of the other while perfecting B, or if one press took a special job for a few hours, or if a pressman came late to work. Of course, the relay method might have been used for B as well, though it seems less likely for a first sheet using equal amounts of two different papers.

2 might receive corrections at much the same time as press 1, that is, after press 1 had printed three tokens (half the run) and press 2 had perfected about one. If the inner forme received its corrections first, the lag of the second press might be more than a ream, and there would be little danger of smudging. But all three papers would have to originate with press 1.

The apparently balanced distribution of papers in sheet C suggests an interesting variation. After press 1 had printed the three tokens of pot paper, it could receive the outer forme and begin perfecting. In the meantime inner C, now corrected, might find press 2 idle and use it for printing the second half of the edition sheet, on IHS and bird paper laid out for that press. Press 1 after perfecting a token would need to stop for corrections, about midday. It might end in perfecting the sheets printed by both presses.

Whatever the system used to print sheet D, it looks as if perfecting was completed at the end of a day, when a shift of skeletons took place. The time needed for relay printing is not easy to reckon, but two presses could handle an edition-sheet of 1500 in one day if the second press followed the first by two or three tokens. In the meantime, however, the first press would be able to go on to new work.

The uncertainties are too many in view of our little acquaintance with two-press work and the meanings of watermarks. At present the best evidence in favor of the use of two presses in any sheet of *The Opportunitie* seems to be that of two compositors at work on sheet C—where there might be the need of keeping up with two presses turning out sheet B. Actually, the intrusive compositor seems to have set just two pages of C, and there might be various reasons for his appearance. If we could assign a single two-press method to sheets B, C, D, the idea of two presses would be more attractive. Or if the pot paper of B and C extended into D, we might accept two-press printing for B and C. However, so neatly does the one-press hypothesis fit with the meaning suggested for the skeleton

shifts, with the apparent relation between press corrections and watermarks in sheets C and F, and with the evidence of parallel work on *The Opportunitie* and *The Coronation*—there seems little reason to look for an ornate explanation. At the same time, it is manifest that we need more light on two-press methods; and it looks as if variant watermarks, when studied, may furnish some.

There remains the question of the approximate period during which *The Opportunitie* was put through the press. We have a fairly definite *terminus ad quem*. After some three years in Ireland, Shirley returned to England in mid-April 1640.[72] He must have reached London about Monday, April 20.[73] As he found his play "emergent from the Preſſe, and prepar'd to ſeeke entertainment abroad," we may take it that sheets B to K were then printed and ready, or sheet K was coming from the press. Reckoning back in terms of 1500 copies, a single press, and the skeleton shifts, we can make a schedule with tentative dates. It starts on April Fool's day and need not be taken as revelation.

April 1, 2, 4 (Wed.-Sat. of Holy Week). Sheet B composed and printed. A compositor would set about six pages on the first day,[74] and printing might begin late on the morning of the 2nd. If the pressman did not labor on Good Friday, but worked all day Saturday, he would finish perfecting the sheet by that evening; and the first skeleton shift would come at the end of a week. Meanwhile, sheet C would be composed, one compositor setting two pages on Thursday afternoon (say) and another the remaining six on Saturday.

April 6-11 (Easter week). Sheets C, D, E printed; C and D on the first three days, E after a delay (of uncertain length) on Friday-Saturday. The late corrections in inner C may be due to

72. "Shirley's Years in Ireland," pp. 25-27.

73. A week later, on April 28, two plays which he probably had brought with him from Ireland were entered on the Register by Richard Whitaker. Greg, *Bibliography*, 1, 53.

74. Hinman, "New Uses of Headlines," p. 209.

New Uses of Watermarks As Bibliographical Evidence

IN THE SEVENTEENTH CENTURY ONE ECONOMY practised in the publishing of cheap play quartos was the use of job lots of paper. These papers usually originated in France and varied somewhat in thickness, texture, and watermarks. As a result of their use, many quartos contain several different watermarks, and some almost as many different watermarks as sheets.[1] Often individual sheets vary in watermarks from copy to copy. It is obvious that such varying watermarks may prove a source of information as to the manner in which a book went through the press. Despite inherent ambiguities, they promise support to the evidence supplied by press corrections, headlines, and the early treatise by Joseph Moxon toward the solution of bibliographical problems.

This article is intended as a preliminary enquiry into the significance of job-lot or variant watermarks. The evidence and illustrations are drawn mainly from a group of play-quartos printed by Thomas Cotes in the spring of 1639/40. Though studies of the papers of other printers are needed for correlation, the present investigation appears already to yield useful inferences and methods.

1. McKerrow notes that "many printers bought their paper in job-lots, and it is common to find a number of different watermarks in a book about the printing of which there appears to have been nothing abnormal." Ronald B. McKerrow, *An Introduction to Bibliography* (Oxford, 1927), p. 101 n.

the late arrival of the Cotes brothers or their corrector on Easter Monday. Skeleton X got turned at the time of the delay, and the week ends with the third shift of skeletons.

April 13-18 (Mon.-Sat.). Sheets F, G, H, I printed. If inner F was printed first and outer F was the perfecting forme, corrections must have been made between days after a ream of uncorrected pulls. The press handled a normal week's run of four edition-sheets. At the end of the week skeleton X got turned again.

April 20-22 (Mon.-Wed.). Sheet K and half-sheet A printed. Shirley came to the printing-house on Monday or Tuesday and wrote the dedication to Captain Owen. If there were no delay, the half-sheet might be printed on Tuesday afternoon and perfected on Wednesday morning. Gathering into copies might take place later the same day.

Though there is no way to check the details of this schedule, the general idea in it seems right enough, and the imagined sequence is instructive. We realize that one press would take nearly three weeks to produce an edition of 1500 copies. We note that Easter may have contributed to the irregularities of sheet C. The shifts and turns of skeleton suggest reasonable allocations of work to particular days and weeks. And through analogy we can measure the amount of time Cotes took to print *The Coronation*, and perhaps the whole series of 1639/40 Fletcher-Shirley quartos.

We can now cast up accounts. Study of the variant watermarks[75] in *The Opportunitie* has enabled us to draw several useful inferences: (1) It was printed in an edition of 1500 copies. (2) It was produced mainly or wholly on a single press parallel with *The Coronation*. (3) Late corrections, when made, occurred be-

75. The term job-lot watermarks proves inadequate. For any shift of marks within an edition sheet or between sheets, whatever its cause, may be valuable evidence. Some quartos contain only two or three different watermarks; for instance, the Chicago copy of Shirley's *St Patrick for Ireland* (Raworth, 1640) contains two varieties of hand watermark, probably from the same factory; and their sources usually will not be job-lots of paper. The term variant watermarks may be used safely enough in general situations, though most advantageously where a dominant watermark provides a norm.

tween tokens or reams, and sometimes at noon or night. (4) Composition and presswork on the quarto took approximately the first three weeks of April 1640.

Similar study of other play quartos, and indeed books of various formats, dates, and printers, should improve the quality of such inferences, and should throw light on two-press work and other procedures of the printing-house. One weakness of watermarks as evidence is their inherent ambiguity. And they lend themselves to subleties and complications. Clearly, he who looks for meaning in their permutations needs to temper ingenuity with calm common sense. Bibliographers who fear madness may prefer to let them alone.

There are, however, some simple uses of variant watermarks that may help to preserve sanity. I mention three.

First, an obvious point. Everyone knows that in first editions the preliminaries were commonly printed last, but everyone cannot readily demonstrate the fact. A glance at the tables of watermarks found in *The Opportunitie* and *The Coronation* is enough to assure oneself that half-sheet A of both these plays was printed at least among the last. However, the continuity of watermarks is sometimes lacking, as in *Loves Crueltie* and *The Night-Walker;* and in such cases there may have been a delay in printing the preliminary half-sheet.

The second point presents a useful corollary. As press corrections are ever a highly important source of evidence as to what an author wrote, we need aids in searching them out. Variant watermarks are such an aid. After the investigator has listed the watermarks in several copies of a book, he will sometimes find such a contrast between papers as we have noted in sheets C and F of *The Opportunitie*. In these cases he may well suspect variants and begin collation in sheets with two contrasting marks. Naturally, he will not always find variants: collation of sheet B of *The Opportunitie* in terms of pot and IHS papers yields none; yet collation of the same papers

in sheet C brings to light corrections in the inner forme, and may do so likewise in the outer forme. Clearly this should prove a time-saving device. Working without knowledge of the watermarks, one might examine five or even seven copies of *The Opportunitie* (among the twelve of the table) before finding variants in inner C. In collating some other sheets, the student would have fewer rewards, but before long he would have reason to suspect that most of the formes are invariant.

The principle is simply this: Since textual variants sometimes occur on contrasting papers, one should collate formes printed on such papers first. To this may be added: Since composition of pages in normal order favored a custom of sending the inner forme to press first and the first forme might wait some time for corrections,[76] one should collate inner formes first, at least in two-skeleton printing.

My first attempts to apply the principle were instructive. Noting that my copy of *The Coronation* differed from the University of Chicago copy in watermarks in several sheets, I collated these sheets—and found no variants. Then I realized that only in sheet E were the contrasting marks (bird and grapes) representative, so far as I could tell from five copies. Next I compared the Inderwick-Folger copy of *The Night-Walker* (using a microfilm) with the Newberry copy. The first two sheets I tried yielded variants. Sheet C, with bird and spray marks, proved variant in its inner forme. Sheet G, with pot and IHS marks, proved variant in its outer forme. Testing farther, I listed the watermarks in three copies of *A Pastorall Called the Arcadia*, "Written by *Iames Shirly* Gent." (an unlikely attribution) and printed by John Dawson, 1640. It is evident that Dawson was buying some of the same job-lot papers that Cotes bought. I noted that in sheet C my copy agreed with the Newberry copy in its watermark (lion on a shield) but not with the Chicago copy (15 grapes). Turning at once to the inner forme, I found no corrections on C1v, but at C2r 4 "wif-

76. Cf. Bowers, "Proof Correction in *Lear*," p. 29 and note.

per" in my copy and "whiſper" in the Chicago copy. Thus admonished, I did not shout. But, whatever my run of luck, I was confident I had a gadget that would save some time in collation.

The third (and last) point illustrates the surprises that may lurk in watermarks. Examining the University of Chicago copy of *The Queene of Arragon*, by William Habington, I rejoiced to find three watermarks I knew well—in the midst of folio pages where I could measure them: several IHS marks, many grape marks, and once the bird with wings outstretched. A few days later I looked at the Newberry copy, and discovered a startling thing. The watermarks were different. No IHS marks, no bird mark, just one thin page with grapes. The prevailing mark in the Newberry copy is a long heraldic panel surmounted by a thin cross, the whole not too plain.[77] The paper is thicker than the intrusive grape paper and apparently of a better sort. What is the solution to this little mystery? Although I have not had the copies side by each, I can hardly doubt they are the same setting. The play (collation A^2 B-H^4 I^3) is probably too long to leave in standing type. My guess is that Habington, a butterfly sort of courtier-poet, had a number of copies printed on better-grade paper for himself and his friends, and that Tom Cotes simply included a token or so of this paper in the paper laid out for each sheet. It might be printed last in each edition-sheet so as to benefit from corrections. There would have to be care in gathering the fancy copies, and it is not surprising that one bunch of grapes got in by accident or lack of a fine-paper sheet.[78] I have no idea whether such special printings were rare or not. "The matter deserves further study."[78a]

77. This appears once in ICU—in the title-page (A1).

78. This sheet, F2-3, has the grape watermark in both copies.

78a. Since writing this paragraph I have seen another copy of *The Queene of Arragon*, at the University of Pennsylvania. It contains none of the fine paper and resembles the Chicago copy, having as watermarks grapes (small), IHS, and once each a pot-G/RO and a large bunch of grapes. As it is the tallest of the three

The purpose of this paper has been to call attention to the significance of variant or dissimilar watermarks for bibliographical study. Certain findings of the paper are naturally tentative, subject to the discoveries and corrections of further investigation. But enough has been done to show that the new tool, when its subtleties have yielded to patient analysis, will take its place beside press corrections, headlines, and our knowledge of hand presses as a useful means of enquiry into the manner in which books were made. Actually the tool is an old one put to new employment. A generation of scholars has used inconsistency in watermarks to spot cancels,[79] inserted sheets,[80] mixed issues, standing type,[81] made-up copies, facsimiles,[82], and other irregularities. Indeed, *les filigranes* have come a long way since Briquet compiled his distinguished work, and since A. W. Pollard remarked in the 11th *Britannica* that watermarks are helpful in distinguishing between gatherings. I believe that their aid can be extended to the study of various normal, though relatively complex, situations, and that this aid will prove substantial when it is properly correlated with other bibliographical evidence.

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copies (11 1/8 x 7 1/8 in.), Newberry appears not to be a "large paper" copy. Two instances of presentation copies of play-quartos printed on fine paper are Jonson's *Sejanus* (1605) and *Volpone* (1607); see Greg, *Bibliography*, 1, 342, 391. Mr. Heywood mentions several works printed on large paper in his "Further Notes," pp. 131-32.

79. Cf. McKerrow, p. 225. A recent example is in Southerne's *The Disappointment* (1684): Ray O. Hummel Jr., *The Library*, 5th s., 1 (1946-47), 68.

80. E.g., in a reprint of Cowley's *Works* (1688): W. W. Greg, *The Library*, 4th s., III (1922-23), 55.

81. As in the 1693 edition of Cowley: *ibid.*, p. 56.

82. McKerrow, p. 233.

The examination of watermarks is no easy task. The microfilm facilitates the collation of typographical variants from all over the world, but seldom suggests the presence of even a blatant watermark. If the bibliographer wishes to compare the paper in a number of copies, he must examine them at Bodley, Folger, and Huntington, or wherever they may be; and exact comparison suggests the advantage of carrying his own copy about as a basis of reference. Often it may not be possible to draw clear inferences from fewer than five or ten copies. In quartos the watermarks occur within the fold at the spine, and may be further obscured by sewing and close binding. When small they may be difficult to make out at all; and even when they are large and sprawling they may be difficult to describe well enough for sure recognition when one meets them again.[2] The initials on pots, the quarterings on shields, or the number of grapes on a stem may be hard to decipher. However, many watermarks are sufficiently distinguishable without such details. Gradually as one works from copy to copy the patterns of watermarks in an edition emerge and take on an appearance of significance.

The most interesting set of job-lot watermarks that I have encountered occurs in a group of seven play quartos printed by Thomas Cotes (successor to the Jaggards) in or about February-March-April 1639/40. They consist of two plays of Fletcher, *Wit without Money* (1639) and *The Night-Walker* (1640), printed for Andrew Crooke and William Cooke, and five of Shirley, two, *The Maides Revenge* (1639) and *The Humorous Courtier* (1640), printed for Cooke alone, two, *The Coronation* and *The Opportunitie* (both 1640), printed for Crooke and Cooke, and one, *Loves Crueltie* (1640), printed for Crooke alone.[3] I began the study of

2. I have had the experience of listing a certain watermark five different ways before discovering it was a lean lion rampant upon a twisted escutcheon.

3. The Cooke plays were entered on 12 April and 29 July 1639, the Crooke and Cooke plays with *Loves Crueltie* on 25 April 1639. W. W. Greg, *A Bibliography of the English Printed Drama to the Restoration*, 1 (London, 1939), 50-51. Shirley controlled the whole group and published them while in Ireland. See my ar-

their watermarks to learn what support they offered a hypothesis concerning the order in which these plays were printed. I found that the sequence of the watermarks substantiated my idea of the typographical relations of the title-pages.[4] Thus encouraged, I proceeded to look for further meaning in the watermarks.

I noted that Cotes printed two other plays in 1640: Chamberlain's *The Swaggering Damsell*, for Andrew Crooke, and Habington's *The Queene of Arragon*, for William Cooke. The first is a quarto containing seven of the watermarks found in the Fletcher-Shirley group, and *The Queene of Arragon* is a small *folio* which luckily exhibits three (at least) of the same watermarks —in the center of the page. As these two plays were entered on 2 April 1640,[5] while Cotes was seeing the Fletcher-Shirley quartos through the press, it is likely that he went on with the new work for Crooke and Cooke and completed the Chamberlain and Habington plays by May or June.[6]

I have attempted no complete study of these nine Cotes plays in terms of compositors, headlines, press corrections, and watermarks. There might never be time for that. But I have gathered data on all and have made a detailed study of one important quarto, *The Opportunitie*. I have examined twenty copies of this play for press corrections and twelve copies for watermarks. A full collation of eight copies and a partial collation of others has revealed corrections in just five formes: inner and outer C, outer F, inner G, and inner K. Several of those in outer C and outer F bespeak a corrector of intelligence and resource, but those in the other formes are mechanical and

ticle, "Shirley's Publishers: the Partnership of Crooke and Cooke," *The Library*, 4th s., xxv (1944-45), 140-61.

4. These results will be printed elsewhere.

5. Greg, I, 52.

6. A companion Habington folio, *The Historie of Edward the Fourth*, entered ahead of the play, on 15 Nov. 1639 (Arber, IV, 489), has some of the same marks. Certain other Cotes folios and quartos of 1640, such as Parkinson's *Theatrum Botanicum* and Heywood's *The Exemplary Lives and Memorable Acts of Nine the Most Worthy Women of the World*, contain decidedly different watermarks.

routine, though useful in the study of printing-house practice. This difference in the *kinds* of corrections may itself suggest inferences concerning the order of formes through the press.

Press Corrections in THE OPPORTUNITIE

Forme	Literal	Punctuational	Literary	Uncorrected copies	%
C(i)	5	3	1	10 *ex* 20	50
C(o)	3	7	4	3 " "	15
F(o)	0	5	2	7 " "	35
G(i)	5	9	0	1 " "	5
K(i)	2	0	0	1 " "	5

The table shows the number and frequency of corrections for each forme. If the sample is a fair one, we have indications that half the edition sheet of inner C was run before corrections were made, amounting to nine small changes. Corrections were also made in the outer forme, somewhat sooner in its run, apparently when the reader discovered blunders in the sense. One suspects there had been earlier corrections when the compositor looked over his type or preliminary proofs were taken. In outer F a good third of the sheets remained uncorrected. But of inner G and of inner K only single uncorrected copies have come to light. Their rarity suggests the possible existence of other uncorrected (inner) formes.

Study of the headlines in *The Opportunitie* reveals two distinct skeletons. These show regular and normal transference from forme to forme, except for interchanges of formes at four points and turns of skeleton X at inner E and inner K. This is the pattern of the two skeletons:

Skeleton X:	B(i)	C(o)	D(o)	E(i)^{t}	F(o)	G(o)	H(i)	I(i)	K(i)^{t}
Skeleton Y:	B(o)	C(i)	D(i)	E(o)	F(i)	G(i)	H(o)	I(o)	K(o)

Judging from the treatment of speech prefixes and spellings, the early sheets were set by two compositors, but from about

sheet E on by a single and different compositor.[7] If there is more than coincidence in the turning of skeleton X at inner E, one may suspect an interruption in the work on the quarto there.[8]

With these bibliographical features of the quarto in mind, we turn to the watermarks in *The Opportunitie*. There seem to be seven. The accompanying table shows their distribution in the twelve copies examined, together with the incidence of corrections in these copies. The pot watermark common to sheets B and C is a one-handled pot surmounted by fleuron and crescent; its bowl, measuring 19 mm. across, bears the letters $\frac{G}{RO}$ — probably indicating manufacture by the Rousel family in France.[9] One copy in sheet B has a slightly larger pot with two slender handles and a round bowl of 22 mm., bearing a fleur-de-lis.[10] The characteristic mark of sheets B to F is the very Christian symbol IHS with cross mounted on the bar of the H;[11] it measures 36 x 36 mm.[12] Associated with this paper (in the same edition sheets) is one showing a small bird (45 x 27 mm.) with pointed head, wings outstretched, and tail fanned out: I find nothing like it in Briquet, Bofarull,[13] or Nicolaï.[14]

7. Notable is the shift in the prevailing colloquial spelling of "would" from "wod" to "wud" and of "should" from "shod" to "shud." This is not likely due to a change in copyists, for the manuscript would seem to have been holograph.

8. The new compositor may have come from work on *The Humorous Courtier*, for at E4[r] he set "*Orf.*" (as if for Orseolo) as the catchword instead of "*Af.*" (for Ascanio). Orseolo is the "humorous courtier" of the earlier play.

9. This pot occurs also in *The Night-Walker* and *The Humorous Courtier*. It is similar to Edward Heawood's no. 78 in "Papers Used in England after 1600," *The Library*, 4th s., XI (1930-31), 299. Heawood, p. 289, mentions a MS of 1633 with pot G/RO; and W. A. Churchill illustrates a pot G/RO of about 1645 as no. 469 in *Watermarks in Paper in Holland, England, France, etc., in the XVII and XVIII Centuries and Their Interconnection* (Amsterdam, 1935).

10. It resembles Heawood 89 and is found also in *Wit without Money*, *The Night-Walker*, *The Humorous Courtier*, and *The Swaggering Damsell*.

11. Similar "Jesus" watermarks are illustrated in C. M. Briquet, *Les filigranes* (Paris, 1907), nos. 9461, 9463, 9465, and elsewhere. They were sometimes used as countermarks.

12. The measurements for the IHS, bird, and grape marks are taken from the folio pages of *The Queene of Arragon* (ICU copy).

13. Francisco de A. de Bofarull y Sans, *Los animales en las marcas del papel* (Villanueva y Geltrú, 1910).

14. Alexandre Nicolaï, *Histoire des moulins à papier du sud-ouest de la France 1300-1800* (Bordeaux, 1935).

As these IHS and bird papers are similarly associated in other plays,[15] they probably had the same origin and came packed together, that is, with tokens or reams of each in the same lot or bale. Twice in sheet D occurs a U-shaped spray of flowers (48 mm. across) with letters or leaves between the stems.[16] Then in sheets G, H, I, K, and half-sheet A comes a great harvest of grapes. These grapes are fifteen to a bunch, in diamond form (18 x 13 mm.), with a bit of stem.[17] Among the grapes in sheet H twice appears a crown, over the initials GP (22 mm. wide)—perhaps those of the maker of the grape paper. Except for the bird and spray watermarks, these are all common types and indicate papers imported from France, perhaps from the mills of Normandy.[18] As some copies of the quarto measure at least 7″ x 5¼″ or more, these papers appear to have been of old demy size or about 14½″ x 10½″.[19]

15. *The Night-Walker, The Coronation, The Swaggering Damsell, The Queene of Arragon.* A more homogeneous mixture of paper would be the normal result of the use of two moulds together in the manufacture of paper—see Louis Le Clert, *Le papier* (Paris, 1926), I, 17, and Dard Hunter, *Papermaking* (New York, 1943), pp. 88, 133. In fact, such trays were commonly made and used in matched pairs, so that one ordinarily cannot tell their watermarks apart. But in this group of plays the two marks are not at all alike and are not evenly distributed. Their association must be of a different kind.

16. It turns up also in *Loves Crueltie, The Night-Walker*, and *The Humorous Courtier*, but I find no parallel in the books.

17. Similar to Heawood, "Further Notes on Paper Used in England after 1600," *The Library*, 5th s., II (1947-48), no. 135 or 140, without the leaf and stem. Most illustrations, such as Briquet's show more than fifteen grapes. I find this mark in all seven of the Cotes plays dated 1640. Here it may be noted that the "1639" plays, *Wit without Money* and *The Maides Revenge*, contain some pots, letters, etc., not found in the 1640 plays, along with several marks that link them with them.

18. The indications are that the Rousel (or Rouse) mills were in Normandy. Cf. Heawood's notes on RO paper-marks in "Papers Used in England after 1600," pp. 282, 287, 291, and "Further Notes," p. 125, with his general evidence that most cheap papers came from northwestern France. A recent French authority provides a more definite clue: a legal record of 1636 shows that "Jean Huet et Nicole Rouxel, sa femme, natifs du pays et duché de Normandie," were paying "une chef rente de 12 l. 10 s. et un champart d'une rame de papier" for a mill near Morlaix in Brittany. See H. Bourde de la Rogerie, "Les papeteries de la région de Morlaix depuis le XVe siècle jusqu'au commencement du XIXe siècle," *Contribution a l'histoire de la papeterie en France*, VIII (Grenoble, 1941), 20. This monograph locates the mills of a number of Norman paper-makers, including some who had migrated to Brittany. The well-known Bodleian list of 1674 mentions various papers imported from Caen and Morlaix: R. W. Chapman, "An Inventory of Paper, 1674," *The Library*, 4th s., VII (1926-27), 406-8.

19. Chapman, p. 403. This is not quite half modern demy size. It has scarcely been noted that paper sizes have grown considerably since the Restoration.

Watermarks in THE OPPORTUNITIE

	ICU	DFo[1]	DFo[2]	DFo[3]	MH[1]	MH[2]
A	.....[d]	.....[d]	Grapes[n]	Grapes[n]	.....[d]	Grapes[d]
B	Pot-fl	Pot	Pot	IHS	IHS	IHS
C	Bird$^{c}_{c}$	Pot$^{u}_{u}$	Pot$^{c}_{u}$	Pot$^{c}_{u}$	Pot$^{u}_{u}$	IHS$^{c}_{c}$
D	IHS	Bird	Spray	IHS	IHS	Bird
E	IHS	IHS	IHS	Bird	Bird	IHS
F	IHS[c]	IHS[c]	IHS[c]	IHS[u]	IHS[u]	Bird[c]
G	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$
H	Grapes	Grapes	Grapes	Grapes	Grapes	Grapes
I	Grapes	Grapes	Grapes	Grapes	Grapes	Grapes
K	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$

	DLC[1]	DLC[2]	NNP	ICN	IEN	S
A	Grapes[d]	Grapes[n]	Grapes[d]	Grapes[n]	Grapes[d]	[Missing]
B	IHS	Pot	IHS	IHS	Pot	Pot
C	IHS$^{c}_{c}$	Bird$^{c}_{c}$	Pot$^{c}_{u}$	IHS$^{c}_{c}$	Bird$^{c}_{c}$	Pot$^{u}_{u}$
D	Spray	IHS	IHS	Bird	IHS	IHS
E	IHS	Bird	IHS	IHS	IHS	Bird
F	IHS[u]	IHS[c]	IHS[u]	IHS[c]	Bird[c]	IHS[c]
G	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$
H	Grapes	Crown/GP	Crown/GP	Grapes	Grapes	Grapes
I	Grapes	Grapes	Grapes	Grapes	Grapes	Grapes
K	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$	Grapes$_{c}$

Collation: A[2] B-K[4]. Copies: Chicago, Folger (3), Harvard (2), Library of Congress (2), Morgan, Newberry, Northwestern, Stevenson.

Abbreviations: d dated, *n* not dated, *u* uncorrected and *c* corrected (superscript if outer forme, subscript if inner forme), *fl* fleur-de-lis.

The watermarks in *The Opportunitie* fall into three main groups: pots, IHS-birds, and grapes. There is a certain orderliness in their distribution. Though the marks in various Caroline plays give the impression of chaos,[20] here in a dozen copies we are aware of balance and continuity—a record of presswork in palimpsest form. The striking feature of sheet B is the equal

20. The Warwick Castle-Folger copy of *The Swaggering Damsell* has this sequence of watermarks in nine sheets, A to I: grapes, two sorts of pots, lion, fleur-de-lis/PD, IHS, bird, grapes, IHS.